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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,443	02/18/2004	Misty Azara	CQ10217	3457
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SUGHRUE MION, PLLC 2100 Pennsylvania Avenue, N.W. Washington, DC 20037			EXAMINER GODBOLD, DOUGLAS	
			ART UNIT	PAPER NUMBER
			2626	
			NOTIFICATION DATE	DELIVERY MODE
			03/20/2008	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USPTO@sughrue.com  
USPatDocketing@sughrue.com

# Office Action Summary

**Application No.**

10/781,443

**Applicant(s)**

AZARA ET AL.

**Examiner**

DOUGLAS C. GODBOLD

**Art Unit**

2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This Office action is in response to correspondence filed December 20, 2007 in reference to application 10/781,443. Claims 1-22 are pending in the application and have been examined.

### ***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 20, 2007 has been entered.

### ***Response to Amendment***

3. The amendments to the claims filed December 20, 2007 have been accepted and considered in this office action. Claims 1, 11, 21, and 22 have been amended. The Previous rejection of claim 21 under 35 U.S.C 101 has been withdrawn as a result of the amendment.

### ***Response to Arguments***

4. Applicant's arguments with respect to claims 1, 11, 21, and 22 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, 4-10, 21, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Shriberg et al. (Can Prosody Aid the Automatic Classification of Dialog Acts in Conversational Speech?), from hereon Shriberg1.

7. Consider claim 1, Shriberg1 teaches a method of determining a predictive model for discourse functions (abstract page 3) comprising the steps of:

determining a training corpus of speech utterances (page 7, speech data section discusses the training corpus);

determining at least one discourse function associated with the speech utterances (Pages 8-13, Dialog Act Labeling section discusses dialog act labeling and segmentation for the training corpus. );

determining prosodic features associated with the speech utterances (Page 14-18 teach collecting prosodic features for the training corpus); and

determining a predictive model of discourse functions by associating the prosodic features with the discourse function (page 19, Decision Tree Classifiers section, prosodic classifiers are trained on labeled training data),

wherein the predictive model of discourse functions is operable to predict a likelihood that a specific recognized speech reflects a specific discourse function (prosody models are developed for use in DA classification, Abstract.).

8. Consider claim 2, Shriberg1 teaches the method of claim 1, in which the discourse functions are determined based on a theory of discourse analysis (Pages 8-13, Dialog Act Labeling section discusses dialog act labeling and segmentation for the training corpus. It is inherent that in order to annotate discourse relations, and therefore analysis discourse, it must be based on some theory of discourse analysis.)

9. Consider claim 4, Shriberg1 teaches the method of claim 1, in which the predictive models are determined based on at least one of: machine learning, rules (page 19, Decision Tree Classifiers section, prosodic classifiers are trained on labeled training data. Tree classifiers is machine learning.).

10. Consider claim 5, Shriberg1 teaches the method of claim 4, in which the machine learning based predictive models are determined based on at least one of: statistics, decision trees, Naive Bayes (page 19, Decision Tree Classifiers section).

11. Consider claim 6, Shriberg1 teaches the method of claim 1, in which the prosodic features occur in at least one of a location: preceding, within and following the associated discourse function (Page 14, Prosodic Features section paragraph 1, example is given on how feature F0 will change in an utterance, showing that it occurs within the discourse function.).

12. Consider claim 7, Shriberg1 teaches the method of claim 1, in which the prosodic features are encoded within a prosodic feature vector (Page 14-18 teach collecting prosodic features for the training corpus. Table 10 on page 22 shows a feature set used for classification).

13. Consider claim 8, Shriberg1 teaches the method of claim 7, in which the prosodic feature vector is a multimodal feature vector (Table 10 on page 22 shows a feature set used for classification.).

14. Consider claim 9, Shriberg1 teaches the method of claim 1, in which the discourse function is an intra- sentential discourse function (table 1 page 8 shows statements, which can be itra-sentential discourse.)

15. Consider claim 10, Shriberg1 teaches the method of claim 1, in which the discourse function is an intra- sentential discourse function (table 1 page 8 shows Questions, which can be Inter-sentential discourse.)

16. Consider claim 21, Shriberg1 teaches an apparatus operable to generate a carrier wave encoded to transmit a control program, useable to program a computer to determine a predictive model for discourse functions, to a device for executing the program,(abstract page 3. generating a carrier wave would be inherent if a computer is used, as one must be generated form the memory to execute instructions.) the control program comprising instructions for:

- determining a training corpus of speech utterances (page 7, speech data section discusses the training corpus);

- determining at least one discourse function associated with the speech utterances (Pages 8-13, Dialog Act Labeling section discusses dialog act labeling and segmentation for the training corpus. );

- determining prosodic features associated with the speech utterances (Page 14-18 teach collecting prosodic features for the training corpus); and

- determining a predictive model of discourse functions by associating the prosodic features with the discourse function (page 19, Decision Tree Classifiers section, prosodic classifiers are trained on labeled training data),

- wherein the predictive model of discourse functions is operable to predict a likelihood that a specific recognized speech reflects a specific discourse function (prosody models are developed for use in DA classification, Abstract.).

17. Consider claim 22, Shriberg<sup>1</sup> teaches Computer readable storage medium comprising: computer readable program code embodied on the computer readable storage medium, the computer readable program code usable to program a computer to determine a predictive model for discourse functions (abstract page 3. generating a carrier wave would be inherent if a computer is used, as one must be generated from the memory to execute instructions.) comprising the steps of:

- determining a training corpus of speech utterances (page 7, speech data section discusses the training corpus);

- determining at least one discourse function associated with the speech utterances (Pages 8-13, Dialog Act Labeling section discusses dialog act labeling and segmentation for the training corpus. );

- determining prosodic features associated with the speech utterances (Page 14-18 teach collecting prosodic features for the training corpus); and

- determining a predictive model of discourse functions by associating the prosodic features with the discourse function (page 19, Decision Tree Classifiers section, prosodic classifiers are trained on labeled training data),

- wherein the predictive model of discourse functions is operable to predict a likelihood that a specific recognized speech reflects a specific discourse function (prosody models are developed for use in DA classification, Abstract.).



***Claim Rejections - 35 USC § 103***

18. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

19. Claims 3, and 11-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shriberg1 in view of Chino (US Patent 5,761,637).

20. Consider claim 3, Shirberg1 teaches the method of claim 2, but does not specifically teach that the theory of discourse analysis is at least one of: the Linguistic Discourse Model, the Unified Linguistic Discourse Model, Rhetorical Structure Theory, Discourse Structure Theory and Structured Discourse Representation Theory.

However, In the same field of Discourse analysis, Chino teaches using Discourse Structure Theory for discourse analysis (Figure 7 shows a generated discourse structure for the speech input, column 6 line 13- column 7 line 28.)

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the discourse structure theory as taught by Chino for doing discourse analysis as taught by Shriberg1 in order to provide a specific method for discourse analysis, allowing the structure of a conversation to be observed in a method that is well known to those skilled in the art of linguistic analysis.

21. Consider claim 11, Consider claim 1, Shriberg1 teaches a system of determining a predictive model for discourse functions (abstract page 3) comprising the steps of:

an input/output circuit for retrieving a corpus of at least one speech utterance (page 7, speech data section discusses the training corpus, obvious it must be inputted.);

determining at least one discourse function associated with the speech utterances (Pages 8-13, Dialog Act Labeling section discusses dialog act labeling and segmentation for the training corpus. );

A processor (inherent in prosodic feature extraction and decision tree modeling) for:

determining prosodic features associated with the speech utterances (Page 14-18 teach collecting prosodic features for the training corpus); and

determining a predictive model of discourse functions by associating the prosodic features with the discourse function (page 19, Decision Tree Classifiers section, prosodic classifiers are trained on labeled training data),

wherein the predictive model of discourse functions is operable to predict a likelihood that a specific recognized speech reflects a specific discourse function (prosody models are developed for use in DA classification, Abstract.).

Shriberg does not specifically teach a processor for determining at least one discourse function associated with the speech utterances.

However, In the same field of Discourse analysis, Chino teaches a processor for determining at least one discourse function associated with the speech utterances (figure 1, column4 line 50, shows a conversation discourse apparatus.).

Therefore it would be obvious to combine the machine discourse analysis as taught by Chino with the modeling system of Shriberg1 in order to eliminate the need for human intervention in the model training process.

22. Consider claim 12, Shriberg1 teaches the system of claim 11, in which the discourse functions are determined based on a theory of discourse analysis (Pages 8-13, Dialog Act Labeling section discusses dialog act labeling and segmentation for the training corpus. It is inherent that in order to annotate discourse relations, and therefore analysis discourse, it must be based on some theory of discourse analysis.)

23. Consider claim 13, Chino teaches the system of claim 12, wherein the theory of discourse analysis is at least one of: the Linguistic Discourse Model, the Unified Linguistic Discourse Model, Rhetorical Structure Theory, Discourse Structure Theory and Structured Discourse Representation Theory. (Figure 7 shows a generated discourse structure for the speech input, column 6 line 13- column 7 line 28.)

24. Consider claim 14, Shriberg1 teaches the system of claim 11, in which the predictive models are determined based on at least one of: machine learning, rules (page 19, Decision Tree Classifiers section, prosodic classifiers are trained on labeled training data. Tree classifiers is machine learning.).

25. Consider claim 15, Shriberg1 teaches the system of claim 14, in which the machine learning based predictive models are determined based on at least one of: statistics, decision trees, Naive Bayes (page 19, Decision Tree Classifiers section).

26. Consider claim 16, Shriberg1 teaches the system of claim 11, in which the prosodic features occur in at least one of a location: preceding, within and following the associated discourse function (Page 14, Prosodic Features section paragraph 1, example is given on how feature F0 will change in an utterance, showing that it occurs within the discourse function.).

27. Consider claim 17, Shriberg1 teaches the system of claim 11, in which the prosodic features are encoded within a prosodic feature vector (Page 14-18 teach collecting prosodic features for the training corpus. Table 10 on page 22 shows a feature set used for classification).

28. Consider claim 18, Shriberg1 teaches the system of claim 17, in which the prosodic feature vector is a multimodal feature vector (Table 10 on page 22 shows a feature set used for classification.).

29. Consider claim 19, Shriberg1 teaches the system of claim 11, in which the discourse function is an intra- sentential discourse function (table 1 page 8 shows statements, which can be itra-sentential discourse.)

30. Consider claim 20 Shriberg<sup>1</sup> teaches the system of claim 11, in which the discourse function is an intra- sentential discourse function (table 1 page 8 shows Questions, which can be Inter-sentential discourse.)

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DOUGLAS C. GODBOLD whose telephone number is (571)270-1451. The examiner can normally be reached on Monday-Thursday 7:00am-4:30pm Friday 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Art Unit: 2626

DCG

/Patrick N. Edouard/  
Supervisory Patent Examiner, Art Unit 2626